

In the Claims:

1. (Currently Amended) A method for patterning dielectric layers on semiconductor substrates, comprising at least the steps of:
  - providing a first layer;
  - depositing at least one layer formed from a dielectric on the first layer, so that a dielectric layer is obtained;
  - depositing a photosensitive resist layer on the dielectric layer;
  - exposing and developing the resist layer in sections, so that a resist mask is obtained, through which sections of the dielectric layer are uncovered;
  - removing the dielectric layer in the sections which have been uncovered through the resist mask at least down to a depth which is such that the first layer is uncovered;
  - incinerating the resist mask in an oxygen plasma, the incineration being carried out at a temperature which is selected to be approximately 200°C or lower, and the oxygen plasma being generated from a gas which at least contains oxygen gas and a forming gas, the oxygen gas being present in an amount of between approximately 60% and 40% ~~or less~~ by volume and the forming gas being present in an amount of between approximately 40% and 60% ~~or more~~ by volume, so that a patterned dielectric layer is obtained; and
  - cleaning the patterned dielectric layer using aqueous dilute hydrofluoric acid.
2. (Original) The method of claim 1, wherein the duration of the step of incinerating the resist mask is selected to be between 30 s and 120 s.

3. (Original) The method of claim 1, wherein the oxygen partial pressure in the gas for generating the oxygen plasma is selected to be between 0.2 and 8.0 Torr.
4. (Original) The method of claim 1, wherein the forming gas at least contains nitrogen gas and hydrogen gas.
5. (Original) The method of claim 1, wherein the first layer is composed of silicon.
6. (Original) The method of claim 5, wherein the dielectric layer comprises at least one layer composed of a silicate glass and/or a silicon carbide.
7. (Original) The method of claim 1, wherein the aqueous dilute hydrofluoric acid has an HF/H<sub>2</sub>O concentration of less than 1:400.
8. (Original) The method of claim 2, wherein the duration of the step of cleaning the patterned dielectric layer using dilute hydrofluoric acid is selected to be less than 60 seconds.
9. (Original) The method of claim 8, wherein the dilute hydrofluoric acid comprises a buffer salt.
10. (Original) The method of claim 1, wherein a wet-chemical clean is carried out after the resist mask has been incinerated.

11. (Original) A method for patterning a dielectric layer on a semiconductor substrate, comprising:
- providing a first layer,
  - depositing a layer formed from a dielectric on the first layer, so that a dielectric layer is obtained;
  - depositing photosensitive resist layer on the dielectric layer;
  - exposing and developing the resist layer in sections, so that a resist mask is obtained, through which sections of the dielectric layer are uncovered;
  - removing the dielectric layer in the sections which have been uncovered through the resist mask at least down to a depth which is such that the first layer is uncovered;
  - incinerating the resist mask in an oxygen plasma, the incineration being carried out at a temperature which is selected to be approximately 200°C or lower, and the oxygen plasma being generated from a gas which at least contains oxygen gas and a forming gas, so that a patterned dielectric layer is obtained; and
  - cleaning the patterned dielectric layer using aqueous dilute hydrofluoric acid.
12. (Original) The method of claim 11, wherein the duration of the step of incinerating the resist mask is selected to be between 30 s and 120 s.
13. (Original) The method of claim 11, wherein the oxygen partial pressure in the gas for generating the oxygen plasma is selected to be between 0.2 and 8.0 Torr.

14. (Original) The method of claim 11, wherein the forming gas at least contains nitrogen gas and hydrogen gas.

15. (Currently Amended) A method for patterning a dielectric layer on a semiconductor substrate to form contact holes, comprising:

providing a first layer;

depositing at least one layer formed from a dielectric on the first layer, so that a dielectric layer is obtained, wherein the dielectric layer is selected from the group consisting of silicon glass and/or silicon carbide;

depositing a photosensitive resist layer on the dielectric layer;

exposing and developing the resist layer in sections, so that a resist mask is obtained, through which sections of the dielectric layer are uncovered;

removing the dielectric layer in the sections which have been uncovered through the resist mask at least down to a depth to expose ~~which is such that the first layer is uncovered~~; and

incinerating the resist mask in an oxygen plasma, the incineration being carried out at a temperature which is selected to be approximately 200°C or lower, and the oxygen plasma being generated from a gas which at least contains oxygen gas and a forming gas, the oxygen gas being present in an amount of approximately 60% or less by volume and the forming gas being present in an amount of approximately 40% or more by volume, so that the patterned dielectric layer is obtained, wherein the patterned dielectric layer is a contact hole; and

cleaning the patterned dielectric layer using dilute hydrofluoric acid.

16. (Cancel)

17. (Currently Amended) The method of claim 15, wherein the oxygen gas being present in an amount of between approximately 50% and 40% ~~60% or less~~ by volume and the forming gas being present in an amount of between approximately 50% and 60% ~~40% or more~~ by volume, so that a patterned dielectric layer is obtained.
18. (Original) The method of claim 17, wherein the oxygen partial pressure in the gas for generating the oxygen plasma is selected to be between 0.2 and 8.0 Torr.
19. (Original) The method of claim 17, wherein the forming gas at least contains nitrogen gas and hydrogen gas.
20. (Original) The method of claim 5, wherein the dielectric layer comprises at least one layer composed of a silicate glass and/or a silicon carbide.